

**Amendments to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

Claims 1-7 (cancelled)

8 (Currently amended). An isolated DNA molecule consisting of a sequence coding for a polypeptide tolerogen which suppresses the autoimmune response of an individual to acetylcholine receptor, comprising residues 61-76 of SEQ ID NO:2 and/or residues 184-210 of SEQ ID NO:2, wherein said polypeptide toleragen comprises a human acetylcholine receptor  $\alpha$  subunit portion and is selected from the group consisting of:

(i) ~~a polypeptide consisting of the amino acid sequence of SEQ ID NO:6;~~

~~(ii) a polypeptide consisting of the amino acid sequence of SEQ ID NO:8;~~

~~(iii) a polypeptide consisting of amino acid residues 1-121 of SEQ ID NO:2;~~

~~(iv) a polypeptide consisting of amino acid residues 1-146 of SEQ ID NO:6;~~

~~(v)~~ (ii) a polypeptide consisting of amino acid residues 122-210 of SEQ ID NO:2;

(iii) a polypeptide Hα1-205 consisting of amino acid residues 1-205 of SEQ ID NO:2;

~~[[vi]]~~ (iv) a polypeptide Hα1-210 consisting of amino acid residues 1-210 of SEQ ID NO:2 ~~which suppresses experimental myasthenia gravis in animal models; and~~

~~[[vii]]~~ (v) a polypeptide as defined in (i)-[[vi]] (iv), or the polypeptide Hα1-210 of SEQ ID NO:2, fused to an additional polypeptide at its N- and/or C-termini, wherein [[the]] a human acetylcholine receptor α-subunit portion, consisting of amino acid residues 1-121 of SEQ ID NO:2, amino acid residues 122-210 of SEQ ID NO:2, amino acid residues 1-205 of SEQ ID NO:2 or amino acid residues 1-210 of SEQ ID NO:2 of said fused polypeptide does not assume the native conformation of the α subunit of the human acetylcholine receptor as determined from a binding assay to α-bungarotoxin.

9(Currently amended). An isolated DNA molecule according to claim 8, which is selected from the group consisting of:

~~(i) a DNA molecule consisting of the nucleotide sequence of SEQ ID NO:5;~~

~~(ii) a DNA molecule consisting of the nucleotide sequence of SEQ ID NO:7;~~

~~(iii)~~ a DNA molecule consisting of the nucleotide sequence of nucleotides 1 to 363 of SEQ ID NO:1;

[[~~(v)~~]] (ii) a DNA molecule consisting of the nucleotide sequence of nucleotides 364 to 630 of SEQ ID NO:1;

(iii) a DNA molecule consisting of nucleotides 1 to 615 of SEQ ID NO:1; and

[[~~(vi)~~]] (iv) a DNA molecule which is ~~degenerate, as a result of the genetic code, to any DNA sequence of (i) to (v) and which codes for a polypeptide coded for~~ encoded by ~~any one of the DNA sequences of (i) to (v)~~ the DNA sequence of (i), (ii) or (iii), and

~~a DNA molecule consisting of a nucleic acid sequence as defined in (i) (vi) or the DNA sequence, SEQ ID NO:1, coding for Hø1 210, fused to additional coding DNA sequences at its 3' and/or 5' end to encode a fusion polypeptide in which the encoded human acetylcholine receptor  $\alpha$  subunit portion does not assume the native conformation of the human acetylcholine receptor  $\alpha$  subunit.~~

Claims 10 and 11 (Cancelled).

12 (Currently amended). An isolated DNA molecule ~~according to claim 9, which consists~~ consisting of the nucleotide sequence corresponding to nucleotides 1 to 363 of SEQ ID NO:1.

Claim 13 (Cancelled).

14(Previously presented). An isolated DNA molecule according to claim 9, which consists of the nucleotide sequence of nucleotides 364 to 630 of SEQ ID NO:1.

15(Currently amended). An isolated DNA molecule according to claim [[9]] 36, wherein said additional ~~coding~~ ~~sequence in (vii) codes for polypeptide is~~ glutathione S-transferase (GST) and is fused at the 5' end of said nucleic acid sequence to the human acetylcholine receptor  $\alpha$  subunit portion at its N- and /or C-termini.

16(Previously presented). A replicable expression vector comprising a DNA molecule according to claim 8.

17(Previously presented). An isolated prokaryotic or isolated eukaryotic host cell transformed with the replicable expression vector of claim 16.

18(Previously presented). A process for preparing a polypeptide which suppresses the autoimmune response of an individual to acetylcholine receptor, comprising:

(i) culturing a host cell of claim 17 under conditions promoting expression; and

(ii) isolating the expressed polypeptide.

Appln. No. 09/820,339  
Amd. dated January 24, 2005  
Reply to Office Action of July 22, 2004

19(Currently amended). A process according to claim 18, wherein the expressed polypeptide is a ~~fused~~ fusion polypeptide.

Claims 20-24 (Cancelled)

25(Currently amended). An isolated DNA according to claim 8, wherein said polypeptide toleragen consists of amino acid residues 1-121 of SEQ ID NO:2.

Claim 26 (Cancelled).

27(Currently amended). An isolated DNA according to claim 8, wherein said polypeptide toleragen consists of amino acid residues 122-210 of SEQ ID NO:2.

28(Currently amended). An isolated DNA according to claim 8, wherein said polypeptide toleragen is [[vi]] polypeptide Hø1-210 consisting of amino acid residues 1-210 of SEQ ID NO:2.

Claim 29 (Cancelled).

30(Currently amended). An isolated DNA according to claim 8, wherein said polypeptide is [[vii]] said fusion polypeptide as defined in (v).

31(Previously presented). An isolated DNA according to claim 30, wherein said additional polypeptide is glutathione S-transferase.

32(New). An isolated DNA molecule coding for a polypeptide toleragen which suppresses the autoimmune response of an individual to acetylcholine receptor, wherein said polypeptide toleragen is selected from the group consisting of:

- (i) a polypeptide consisting of amino acid residues 1-121 of SEQ ID NO:2;
- (ii) a polypeptide consisting of amino acid residues 1-205 of SEQ ID NO:2; and
- (iii) a polypeptide Hø1-210 consisting of amino acid residues of SEQ ID NO:2.

33(New). A replicable expression vector comprising a DNA molecule according to claim 32.

34(New). An isolated prokaryotic or isolated eukaryotic host cell transformed with the replicable expression vector of claim 33.

35(New). A process for preparing a polypeptide which suppresses the autoimmune response of an individual to acetylcholine receptor, comprising:

- (i) culturing a host cell of claim 34 under conditions promoting expression; and
- (ii) isolating the expressed polypeptide.

36(New). An isolated DNA molecule coding for a polypeptide toleragen which suppresses the autoimmune response of an individual to acetylcholine receptor, wherein said polypeptide toleragen is either (a) a polypeptide consisting of amino acid residues 1-121 of SEQ ID NO:2 fused to an additional polypeptide at its N- and/or C-termini, (b) a polypeptide consisting of amino acid residues 1-205 fused to an additional polypeptide at its N- and/or C-termini, or (c) a polypeptide Hø1-210 consisting of amino acid residues 1-210 of SEQ ID NO:2 fused to an additional polypeptide at its N- and/or C-termini, wherein a human acetylcholine receptor  $\alpha$ -subunit portion, consisting of amino acid residues 1-121 of SEQ ID NO:2, amino acid residues 1-205 of SEQ ID NO:2, or amino acid residues 1-210 of SEQ ID NO:2, of said fused polypeptide does not assume the native conformation of the  $\alpha$ -subunit of the human acetylcholine receptor as determined from a binding assay to  $\alpha$ -bungarotoxin.

37(New). A replicable expression vector comprising a DNA molecule according to claim 36.

38(New). An isolated prokaryotic or isolated eukaryotic host cell transformed with the replicable expression vector of claim 37.

39(New). A process for preparing a polypeptide which suppresses the autoimmune response of an individual to acetylcholine receptor, comprising:

Appln. No. 09/820,339  
Amd. dated January 24, 2005  
Reply to Office Action of July 22, 2004

(i) culturing a host cell of claim 38 under conditions promoting expression; and

(ii) isolating the expressed polypeptide.

40(New). An isolated DNA according to claim 8, wherein said polypeptide toleragen consists of amino acid residues 1-205 of SEQ ID NO:2.

41(New). An isolated DNA according to claim 9, which consists of the nucleotide sequence of nucleotides 1 to 615 of SEQ ID NO:1.